# SWARNANDHRA
## COLLEGE OF ENGINEERING & TECHNOLOGY
### (AUTONOMOUS)
Accredited by National Board of Accreditation, AICTE, New Delhi,Accredited by
NAAC with "A" Grade – 3.32 CGPA,Recognized under 2(f) & 12(B) of UGC Act 1956,
Approved by AICTE, New Delhi,Permanent Affiliation to JNTUK, Kakinada
Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

## DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

---

### TEACHING PLAN

| Course Code | Course Title | Semester | Branch | Contact Periods /Week | Academic Year | Date of commencement of Semester |
|---|---|---|---|---|---|---|
| 20AM 3T03 | FUNDAM ENTALS OF JAVA | 3 | AI&ML-A&B | | 2023-2024 | 7-08-2023 |

### Fundamentals of Java

**COURSE OUTCOMES**

| | |
|---|---|
| CO 1. | Able to realize the concept of Object Oriented Programming &Java Programming Constructs |
| CO 2. | Able to describe the basic concepts of Java such as operators,classes,objects,inheritance,packages,Enumeration and various keywords |
| CO 3. | Apply the concept of exception handling and Input/output operations |
| CO 4. | Apply the concept of Multi-threaded Programming |
| CO 5. | Able to develop program using JDBC connectivity to access data from database and execute different queries to get required result. |

| Unit | Out Comes / Bloom's Level | Topics No. | Topics/Activity | Text Book / Reference | Contact Hour | Delivery Method |
|---|---|---|---|---|---|---|
| | | | **UNIT-I: Program Structure in Java** | | | |
| I | CO1. Able to realize the concept of Object Oriented Programming &Java | 1.1 | Introduction,Writing Simple Java Programs | T1 | 1 | Chalk Talk |
| | | 1.2 | Elements or Tokens in Java Programs,Java Statements | T1 | 1 | |
| | | 1.3 | Command Line Arguments,User Input to Programs | T1 | 1 | |
| | | 1.4 | Escape Sequences Comments,Programming Style | T1 | 1 | |

1

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 1.5 | Introduction, Data Types in Java | T1 | 1 | |
| | | 1.6 | Declaration of Variables, Data Types, Type casting | T1 | 1 | |
| | | 1.7 | Scope of Variable Identifier, Literal constants, Symbolic constants | T1 | 1 | |
| | | 1.8 | Formatted Output with print f() Method, Static Variables and Methods, Attribute Final | T1 | 1 | |
| | | 1.9 | Introduction to Operators, Precedence and Associativity of Operators, Assignment Operator(=) | T1 | 1 | |
| | | 1.10 | Basic Arithmetic Operators, Increment(++) and Decrement(--) Operators, Ternary Operator | T1 | 1 | |
| | | 1.11 | Relational Operators, Boolean Logical Operators, Bitwise Logical Operators | T1 | 1 | |
| | | 1.12 | Control Statements: Introduction, if Expression, Nested if Expressions, if-else Expressions, | T1 | 1 | |
| | | 1.13 | Ternary Operator?:, Switch Statement, Iteration Statements: while Expression, do-while Loop | T1 | 1 | |
| | | 1.14 | For Loop, Nested for Loop, For –Each Loop, Break Statement, Continue Statement | T1 | 1 | |
| | | | | **Total** | | **14** |
| | | | **UNIT-II: Classes and Objects** | | | |
| II | CO2. Able to describe the basic concepts of Java such as operators, classes, objects, inheritance, packages, Enumeration and various keywords | 2.1. | Introduction, Class Declaration and Modifiers, Class Members, Declaration of Class Objects | T1 | 1 | Chalk Talk |
| | | 2.2 | Assigning One object to Another, Access Control for ClassMembers, Acessing Private Members of Class | T1 | 1 | |
| | | 2.3 | Constructor Methods for Class, Overloaded Constructor Methods | T1 | 1 | |
| | | 2.4 | Nested Classes, Final Class and Methods | T1 | 1 | |
| | | 2.5 | Passing arguments by Value and by Reference, Keyword This | T1 | 1 | |
| | | 2.6 | Methods: Introduction, Defining Methods, Overloaded Methods | T1 | 1 | |
| | | 2.7 | Overloaded Constructor Methods | T1 | 1 | |
| | | 2.8 | Class Objects as Parameters in Methods | T1 | 1 | |
| | | 2.9 | Access Control, Recursive Methods | T1 | 1 | |
| | | 2.10 | Nesting of Methods | T1 | 1 | |
| | | 2.11 | Overriding Methods | T1 | 1 | |

# SWARNANDHRA
## COLLEGE OF ENGINEERING & TECHNOLOGY
### (AUTONOMOUS)
Accredited by National Board of Accreditation, AICTE, New Delhi,Accredited by
NAAC with "A" Grade – 3.32 CGPA,Recognized under 2(f) & 12(B) of UGC Act 1956,
Approved by AICTE, New Delhi,Permanent Affiliation to JNTUK, Kakinada
Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

| | | 2.12 | Attributes Final and Static | T2 | 1 | |
|---|---|---|---|---|---|---|
| | | | **Total** | | | **12** |
| | | | **UNIT-III:  Arrays,Inheritance,Interfaces** | | | |
| III | CO3  Apply the concept of exception handling and Input/output operations | 3.1 | Introduction,Declaration and Initialization of Arrays,Storage of Array in Computer Memory | T1 | 1 | Chalk Talk |
| | | 3.2 | Accessing Elements of Arrays,Operations on Array Elements | T1 | 1 | |
| | | 3.3 | Assigning Array to Another Arrays,Dynamic change of Array Size,Sorting of Arrays,Search for Values in Arrays,Class Arrays | T1 | 1 | |
| | | 3.4 | Two-dimensional Arrays,Arrays of Varying Lengths,Three-dimensional Arrays,Arrays as Vectors | T1 | 1 | |
| | | 3.5 | Inheritance:Introduction,Process of Inheritance,Types of Inheritances,Universal Super Class-Object Class,Inhibiting Inheritance of Class Using Final,Access Control and Inheritance | T1 | 1 | |
| | | 3.6 | Multilevel Inheritance,Application of keyword Super,Constructor Method and Inheritance,Method Overriding | T1 | 1 | |
| | | 3.7 | Dynamic Method Dispatch,Abstract Classes,Interfaces and Inheritance | T1 | 1 | |
| | | 3.8 | Interfaces:Introduction,Declaration of Interface,Implementation of Interface | T1 | 1 | |
| | | 3.9 | MultipleInterfaces,Nested Interfaces | T1 | 1 | |
| | | 3.10 | Inheritance of Interfaces, Default Methods in Interfaces | T1 | 1 | |
| | | 3.11 | Static Methodes in Interface,Functional Interfaces,Annotations | T1 | 1 | |
| | | | | **Total** | | **11** |
| | | | **UNIT_IV:Packages and Java Library** | | | |
| IV | CO4: Apply the concept of Multi-threaded Programming | 4.1 | Introduction,Defining Package,Importing Packages and Classes into Programs,Path and Class Path,Access Control | T1 | 1 | |
| | | 4.2 | Packages in Java SE,Java.lang Package and its Classes,Class Object,Enumeration,class Math | T1 | 1 | |
| | | 4.3 | Wrapper Classes,Auto-boxing and Auto-unboxing,Java util classes and Interfaces,Formatter Class,Random | T1 | 2 | |

# SWARNANDHRA
## COLLEGE OF ENGINEERING & TECHNOLOGY
### (AUTONOMOUS)
Accredited by National Board of Accreditation, AICTE, New Delhi,Accredited by
NAAC with "A" Grade – 3.32 CGPA,Recognized under 2(f) & 12(B) of UGC Act 1956,
Approved by AICTE, New Delhi,Permanent Affiliation to JNTUK, Kakinada
Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

| | | | Class | | | |
|---|---|---|---|---|---|---|
| | | 4.4 | Time Package,Class Insatnt(java.time.instant),Formatting for Date/Time in Java,Temporal Adjusters Class | T1 | 1 | |
| | | 4.5 | **Exception Handling:** Handling:Introduction,Hierarchy of Standard Exception Classes,keywords throws and throw,try,catch and finally blocks | T1 | 1 | |
| | | 4.6 | Multiple Catch clauses,Class Throwable,Unchecked &Checked Exceptions,try with resources | T1 | 1 | Chalk Talk |
| | | 4.7 | Catching Subclass Exception,Custom Exceptions,Nested try and catch Blocks,Rethrowing Exception,Throws clause | T1 | 1 | |
| | | | Total | | 7 | |
| | | | | **Total** | 7 | |
| | | | **UNIT-V: String Handling in Java** | | | |
| V | CO5: Able to develop program using JDBC connectivity to access data from database and execute different queries to get required result. | 5.1 | Introduction,Interface Char Sequence,Class String,Methods for Extracting Characters from Strings | T1 | 1 | Chalk,Talk |
| | | 5.2 | Methods for Comparison of Strings,Methods for Modifying Strings | T1 | 1 | |
| | | 5.3 | Methods for Searching Strings,Data Conversion and Miscellaneous Methods,Class String Buffer and Builder | T1 | 1 | |
| | | 5.4 | Multithreaded Programming:Introduction,Need for Multiple Threads Multithreaded Programming for Multi core Processor,Thread Class,Main Thread-Creation of New Threads,Thread States | T1 | 1 | |
| | | 5.5 | Thread Priority-Synchronization,Deadlock and Race situations | T1 | 1 | |
| | | 5.6 | Deadlock and Race situations,Inter-thread communication-Suspending,Resuming,and Stopping of threads. | T1 | 1 | |

# SWARNANDHRA
## COLLEGE OF ENGINEERING & TECHNOLOGY
### (AUTONOMOUS)
Accredited by National Board of Accreditation, AICTE, New Delhi,Accredited by
NAAC with "A" Grade – 3.32 CGPA,Recognized under 2(f) & 12(B) of UGC Act 1956,
Approved by AICTE, New Delhi,Permanent Affiliation to JNTUK, Kakinada
Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

| | | 5.7 | Java Database: Connectivity:Introduction,JDBC Architecture | T1 | 1 | |
| | | 5.8 | JDBC Environment Setup,Establishing JDBC Database Connections,ResultSet Interface | T1 | 1 | |
| | | 5.9 | JDBC Batch Processing,JDBC Transaction Management | | 1 | |
| | | | | **Total** | | **9** |

**Text Books:**

| S.No. | AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION |
| --- | --- |
| 1 | Anitha Seth,B.L.Juneja,"Java one step ahead",Oxford,2017. |
| 2 | Herbert Schildt,"The complete Reference Java",8th Edition,TMH,2017 |

**Reference Books:**

| S.No. | AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION |
| --- | --- |
| 1 | Y Daniel Liang,"Introduction to Java Programming",10th Edition,Pearson,2018. |
| 2 | Joel Murach,"Murach's Java Programmin",5th Edition,Mike Murach&AssosciatesInc;2017. |

**E-Resources:**

| | |
| --- | --- |
| 1 | https://nptel.ac.in/courses/106/105/106105191 |
| 2 | https://www.w3schools.com/java/java_data_types.asp |

| | | Name | Signature with Date |
| --- | --- | --- | --- |
| i. | Faculty | Mrs.B Aswani Devi | B.AswaniDevi |
| ii. | Course Coordinator | Mr. K. Jai Prakash | K. Jai Prakash |
| iii. | Module Coordinator | Dr.G.Sudhakar | |
| iv. | Programme Coordinator | Dr .B.Ramakrishna | |

Principal